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## Ammonium Urate in the Semen of Bulls with Testicular Hypoplasia


*By*

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### INTRODUCTION

As far as has been ascertained, the literature does not appear to record the occurrence of ammonium urate in the semen of normal bulls or in those having hypoplastic testicles. During the course of our investigations into the causes of sterility in bulls, however, we encountered two cases of hypoplasia, and both showed the deposit of this salt in their semen. The diagnosis of hypoplasia was confirmed after slaughter, and that of ammonium urate on microscopical appearance as well as by chemical analysis in both cases. An examination of the genitalia of these bulls on autopsy showed further that their hypoplastic testicles were accompanied by an under-development of the epididymis. In one case, one-sided vacuolisation of the epithelial sheet of the tail of the epididymis was also recorded.

### OBSERVATIONS

*History and Examination.*—AB 18 was an 18 months old Shorthorn bull, which was first put to service at the age of 12 months. During the first six months of his breeding career, he served 25 cows and heifers, many more than once, but none became pregnant. His daily ration consisted of 5 lb. of dairy concentrates, 20 lb. of mangolds, and hay *ad lib.* He was kept in a small loose-box and had never been given any exercise. The fertility records of his parents could not be traced. On external examination, his testicles were found to be about three-fifths the normal size, the left one being slightly smaller than the right. He had a tendency to keep his scrotum in a tucked-up position, thereby giving the impression of having a short spermatic cord. The rectal examination revealed nothing of interest. At the time of collecting semen in an artificial vagina, he showed a very lively behaviour.

His semen, which was collected several times on two different occasions, showed a white deposit in all ejaculates a few minutes after collection. The sedimentation of the deposit was complete within 10 to 20 minutes, and none occurred thereafter, even on centrifugation. The deposition was more rapid if the sample was cooled than left at room temperature. The amount of the deposit, in the moist state, varied from 0·05 to 0·15 c.c. per ejaculate, and seemed to increase with an increase in the volume of the ejaculate. The urine of the animal showed no such deposit during life or after slaughter. On analysis this deposit was found to be ammonium urate. The results of the semen tests are shown in Table I.

AB 25 was a 24-months-old Shorthorn bull, which started to serve at the age of 12 months. In the course of nine months, he served 20 cows, but none became pregnant. His daily ration was 3 lb. of oats, 8 lb. of grass-meal and a sufficient quantity of hay. He was exercised for 30 minutes every day. For a few months his ration was supplemented with high quality proteins, but this did not promote any improvement in his fertility. Both of his testicles were small, about half of the normal size, while the epididymis—especially the tail on the left side—was practically unpalpable. The tucked-up condition of his scrotum resembled that of AB 18. His behaviour on service was so lively that the collection of semen was effected by using a quiet bull in place of a cow.

As in the case of AB 18, the semen of this bull also showed a deposition of ammonium urate in all the ejaculates collected on two different occasions. The urine showed no such deposit. The results of his semen tests are shown in Table I.

*Post-mortem findings.*—The testicles of both bulls were under-developed and smaller than normal, as already stated. The microscopical examination of the testicular sections showed that most of the seminiferous tubules were hypoplastic, and were lined by a single layer of spermatogonia (Fig. 1). In some tubules, spermatogenesis had progressed to the stage of spermatocytes and spermatids, but the tubules showing spermatozoa were very few (AB 18) or extremely rare (AB 25). In the tubules showing advance towards spermatogenesis, degeneration of germ cell layers, with a considerable desquamation of the germ cells into the central part of the lumen, was almost always present.

The testicular hypoplasia in both bulls was accompanied by an under-development of the epididymis. In AB 18, the epididymis on both sides was about three-fourths the size of the normal organ. In AB 25, it was about one-half the normal size on the right and about one-fourth on the left side, so that it was quite difficult to cut a piece of reasonable size from the tail for sectioning. Microscopically, the lumen of the epididymal canal, in both the head and the tail, was narrower than normal in all sections (Figs. 1, 2 and 3). As regards the width of the epithelial sheet, it had subnormal dimensions in some parts (*viz.*, left head of AB 18, right head of AB 25) and normal or above normal in others (*viz.*, tails in both cases). The figures for the diameter of the epididymal canal and the width of

TABLE.—SEMEN TESTS OF THE BULLS WITH TESTICULAR HYPOPLASIA

| Bull number | Ejaculate | Volume (c.c.) | Colour and consistency | *p*H | Sperm count (per c.mm.) | Motility | Longevity (hours) | Abnormal sperm (%) | Phosphatase (units %) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Acid | Alkaline |
| AB 18 (17.7.47) | I | 11·4 | Whitish, watery | 6·8 | 500 | 0 | — | — | 57 | 42 |
| | II | 6·0 | ,, | 6·6 | 312 | 0 | — | — | 90 | 102 |
| | III | 7·1 | ,, | 6·6 | 406 | 0 | — | — | 48 | 57 |
| | IV | 6·5 | ,, | 6·8 | 406 | 0 | — | — | — | — |
| (6.8.47) | I | 1·3 | ,, | 6·8 | — | 0 | — | — | 383 | 199 |
| | III | 1·5 | ,, | 6·8 | 30 | 0 | — | — | 181 | 149 |
| AB 25 (19.9.47) | I | 3·3 | Whitish, watery | 6·6 | 112,000 | 5 × 1 | 6 | 26 | 119 | 583 |
| | II | 5·5 | ,, | 6·8 | 112,000 | 10 × 1 | 12 | 46 | 480 | 965 |
| | III | 3·4 | ,, | 6·8 | 80,000 | 5 × 1 | 18 | 35 | 286 | 865 |
| | IV | 4·0 | ,, | 7·0 | 48,000 | 5 × 1 | 18 | 22 | 249 | 737 |
| (10.10.47) | I | 2·4 | ,, | 6·8 | 121,000 | 10 × 1 | 6 | 34 | 288 | 737 |
| | II | 3·3 | ,, | 6·8 | 92,000 | 5 × 1 | 6 | 34 | 267 | 816 |
| | III | 3·4 | ,, | 6·8 | 80,000 | 5 × 1 | 12 | 26 | — | — |

NOTES.—(1) *p*H was measured with a B.D.H. capillator immediately after collection. (2) The first figure under motility gives the percentage of motile sperm and the second the type of motility on a rating of 0 to 5. (3) Longevity was noted by storing semen at about 5° C. following gradual cooling. (4) Abnormal sperm were counted from stained smears. (5) Acid phosphate was detrimental in terms of "Gutman and Gutman units" (incubation at *p*H 4·0) and alkaline phosphatase in terms of "King and Armstrong units" (incubation at *p*H 9·0).

the epithelial sheet, together with normal figures (Haq, 1948), are given below.

| | Right epididymis Head | Right epididymis Tail | Left epididymis Head | Left epididymis Tail |
|---|---|---|---|---|
| Normal bull— | | | | |
| Diameter of lumen | 180–330μ | 590–740μ | Same as the right side | |
| Height of epithelium | 53–95μ | 38–60μ | ditto | |
| AB 18— | | | | |
| Diameter of lumen | Not sectioned | | 120–150μ | 300–420μ |
| Height of epithelium | ditto | | 35–50μ | 40–63μ |
| AB 25— | | | | |
| Diameter of lumen | 210–270μ | 370–670μ | 180–240μ | 330–440μ |
| Height of epithelium | 49–70μ | 42–70μ | 63–70μ | 56–77μ |

While the variation in the width of the lumen and the epithelial sheet of the epididymis was quite prominent in some parts, in others the difference was not marked. An examination of the section under a 2/3 lens could detect this condition more readily. In some parts, particularly when the lumen was very narrow, there was an increase in the intertubular tissue.

The tail of the left epididymis of AB 25 showed vacuolar degeneration, resulting in the formation of cyst-like cavities in the epithelial sheet (Fig. 4). These vacuoles were oval or spherical in shape and averaged in size 75μ × 55μ (min. 20 × 18; max. 105 × 85). There were no signs of desquamation or breakdown of the epithelium into the lumen of the canal, nor was there evidence of leucocytic infiltration or fibroplastic proliferation to suggest a chronic inflammatory reaction. The condition bore resemblance to the vacuolisation of the germ layers seen in testicular degeneration.

## Discussion

The possibilities of the contamination of semen with ammonium urate from other sources were eliminated by (*a*) taking adequate measures to observe scrupulous cleanliness in preparing the artificial vagina for collecting semen and avoiding contamination through the use of drying and lubricating agents; (*b*) absence of the deposit of this salt in the urine of the bulls before and after slaughter, coupled with the absence of any lesion of the urinary tract; and (*c*) presence of the salt in all the ejaculates collected from the two bulls on four different occasions. There was no change in the rations allowed to these bulls before or during the period of observations. These facts led to the conclusion that the source of the salt lay somewhere in the genital tract of the bulls.

Although it has not been possible to find out the precise source of this salt, it is possible that it was formed from a breakdown of the nucleoproteins of the abnormal spermatogenic cells, whereby the nucleoproteins changed to purine nucleosides or free purines, and those in turn metabolised to uric acid and thence to ammonium urate by combination with ammonia (Plimmer, 1941; and Mann, 1945). Diseases like leucaemia and pneumonia involving excessive nuclear breakdown have been known to result in an increased uric acid content of the blood and urine of man (Thorpe, 1940). If this were the explanation, ammonium urate should also appear in the semen of bulls showing advanced degeneration of the testicles, but that has not been seen by us so far. There is, of course, a possibility that the formation of this salt might have resulted from certain factors peculiar to hypoplastic testicles only.

Since the phosphatase level in the dividing nuclei is said to parallel the amount of desoxyribonucleic acid present (Moog, 1946), the low phosphatase content* (especially the acid phosphatase which is the enzyme of major significance in the nucleus) strengthens the likelihood of nucleoprotein degradation in the bulls referred to above. Krugelis (quoted by Moog, 1946) observed alkaline phosphatase activity in the mitotically active chromosomes of mouse testes, *i.e.*, in the spermatogonia and the spermatocytes but not in the spermatids or sperm. If this were true in bulls, the inactive germ cells of the hypoplastic testicles further account for the low content of alkaline phosphatase in the seminal fluid of at least AB 18. The normal or perhaps slightly high content of alkaline phosphatase of AB 25, however, remains unexplained on this ground. These points cannot be elucidated clearly until more is known about the phosphatase content of the semen of bulls.

The small size of the epididymis, coupled with the narrowing of its lumen and the reduced height of its epithelium in many parts, indicated an under-development of this organ. As there was no evidence, either clinical or microscopical, to suggest that this atrophic change resulted from any disease, and because this condition accompanied testicular hypoplasia in all the four testicles of the two bulls examined, it was considered that this condition might well be of the same origin as hypoplasis of the testes, *i.e.*, an hereditary defect (Klein, 1931; Lagerlof, 1939; and Eriksson, 1939). On the basis of these observations, it is suggested that if the epididymis is not easily palpable (small) in the young bulls having only a few spermatozoa in their semen, the existence of hypoplasia should be strongly suspected, even when their testicles are not obviously small.

The vacuolar degeneration of the epithelium of the left tail of the epididymis of AB 25 seemed similar to the condition described in man by Maximow & Bloom (1945). As this vacuolisation was limited to the tail of the epididymis, which was very small in size, it was considered to result from a dysfunction of the under-developed epididymis later in life. The possibility of its hereditary nature was excluded owing to its absence in three out of four organs studied, and it was unlikely to be due to a slow irritation of internal or external origin because there was no evidence of acute or chronic inflammatory reaction on microscopical examination.

* Experiments on the phosphatase content of the semen of bulls are in hand, and the results will be published separately at an early date.

## Summary

(1) The occurrence of ammonium urate in the semen of two bulls with testicular hypoplasia is recorded, and the possible mode of the formation of this salt discussed. (2) The under-development of the epididymis, as an accompaniment to hypoplastic testicles of the two bulls, is recorded and described. The link between epididymal under-development and testicular hypoplasia is suggested as an aid in diagnosing the latter clinically. (3) One-sided vacuolar degeneration of the tail of the epididymis in one of the two bulls is also recorded and described.

*Acknowledgments.*—The authors are grateful to Professors H. D. Kay and T. Dalling for their valuable comments, to Dr. F. H. Grimbleby (University of Reading) and Dr. H. H. Green (Veterinary Laboratory, Weybridge) for chemical analysis of the deposit of ammonium urate, and to Mr. F. A. Keep for technical assistance.

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# An Abnormal Case of Anastomosis between the Medial and Lateral Volar (Plantar) Nerves in a Horse

*By*

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## Introduction

In chronic lameness in the horse and particularly when the seat of trouble is in the foot and all other forms of treatment have failed, volar plantar neurectomy may be performed. This operation is based on the normal anastomosis between the medial and lateral volar nerves. However, in some cases this operation fails to relieve the horse of its lameness and no satisfactory explanation has been offered to account for such failure.

Chauveau (1891) stated that the anastomotic branch of the medial volar nerve was given off midway down the metacarpus and crossed obliquely over the superficial flexor tendon to join the corresponding lateral nerve. No reference was given to the point of union. Share-Jones (1908) described the anastomosis between the previously-mentioned nerves as occurring at a point one to two inches above the nodular inferior extremity of the outer splint bone. Strangeways (1917) mentioned that such a union between the two volar nerves occurs midway down the metacarpus by means of an oblique branch which crosses the flexor tendons posteriorly. McFadyean (1922) stated that about the middle of the metacarpus the internal plantar nerve gives off a considerable branch which winds obliquely downwards and outwards behind the flexor to join the external plantar nerve an inch or more above the button of the splint bone. Bradley

## N. S. Barron and I. Haq : TESTICULAR HYPOPLASIA IN BULLS

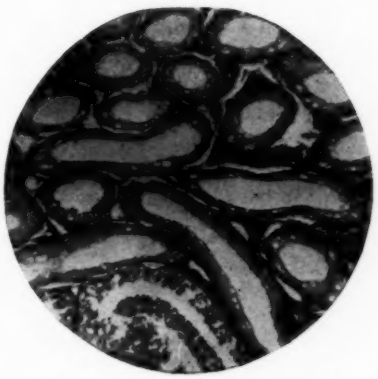


FIG. 1.—Testis showing hypoplastic tubules. The tubule at the base shows partial progress towards spermatogenesis with desquamated cells lying in the lumen (Haemalum = eosin, × 100)

FIG. 2.—Normal epididymal head (Haematoxylin-eosin, × 100)

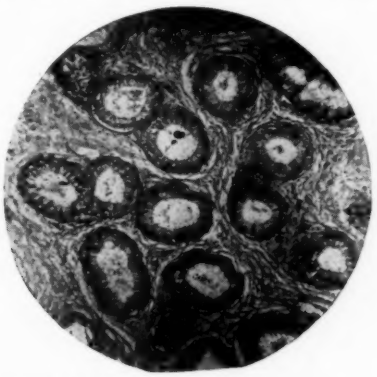
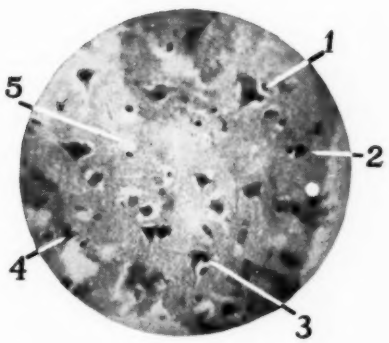


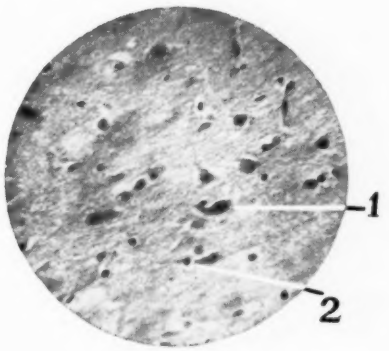
FIG. 3.—Epididymal head showing under-development of its lumen with inter-tubular hyperplasia (Haemalum-eosin, × 100)

FIG. 4.—Epididymal tail showing vacuolar degeneration of its epithelial sheet (Haemalum-eosin, × 100)

## E. von Lustig-Lendva : "A NEW VIRUS DISEASE OF DOGS"—"DISPLACEMENT BODIES"

[See page 158]



(1923) says that an anastomotic branch to the external metacarpal nerve passes obliquely outwards and downwards above the fetlock. Sisson (1941) described the course of the anastomotic branch as winding obliquely over the flexor tendons and joining the lateral nerve below the middle of the metacarpus.

### EXPERIMENTAL

A chestnut gelding about four years old was received by the Anatomy Department for destruction on account of an incurable lameness of the off-fore caused by chronic inflammation of the flexor tendons and check-band.

In this particular case steps were taken to ascertain the real cause of lameness which persisted even after neurectomy had been performed. A detailed dissection was carried out with the sole purpose of finding out the mode of distribution of its nerve supply.

### RESULT AND DISCUSSION

An interesting case of anastomosis between the medial and lateral volar nerves was revealed. The anastomotic branch, instead of originating, as reported by many authors, from the medial volar nerve about the middle of the large metacarpal bone and winding round the tendon of the superficial flexor passing in an oblique direction through the thickness of the tendon sheath downwards and outwards to join the lateral volar an inch or more above the button of the splint bone (Fig. 1), was found to pass directly downwards over the tendon of the superficial flexor under the deep fascia of the metacarpus and followed the posterior border of the lateral volar nerve and finally joined it after it had given off its anterior branch (Fig. 2). This latter branch is normally given off at the fetlock joint.

Thus, an explanation was found for the failure of the volar neurectomy operation to relieve the lameness of the horse because it had been done at its usual place, *i.e.*, above the point where this abnormal anastomosis took place.

It is evident from this case that some of the unsuccessful results which may sometimes follow the performance of the higher volar neurectomy operation in cases of foot lameness of the horse may be due to union between the volar nerves at a level lower than that at which the operation is usually performed.

(*For references see foot of col.* 1, *p.* 158)

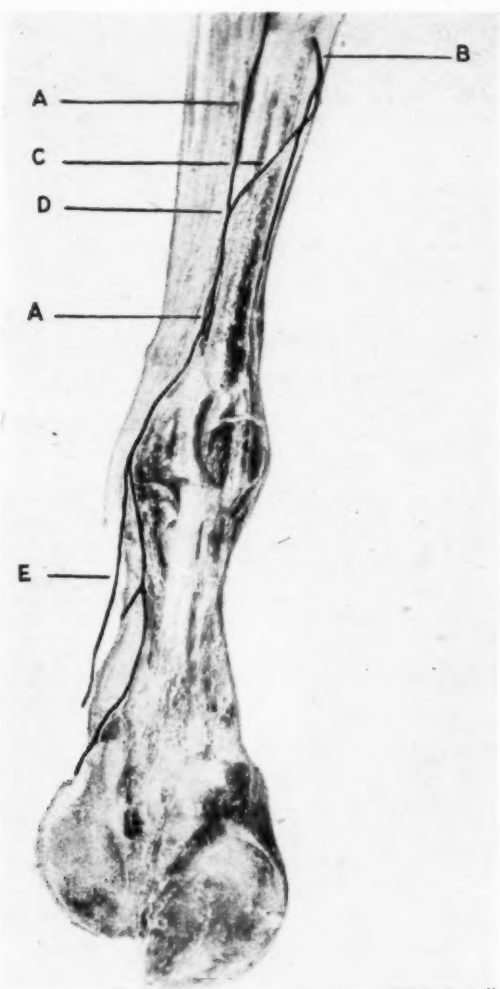



Fig. No. 1.—Outer Aspect

AA—External Plantar Nerve; B—Internal Plantar Nerve; C—Communicating Branch; D—Point of Communication; E—Digital Branches of A.

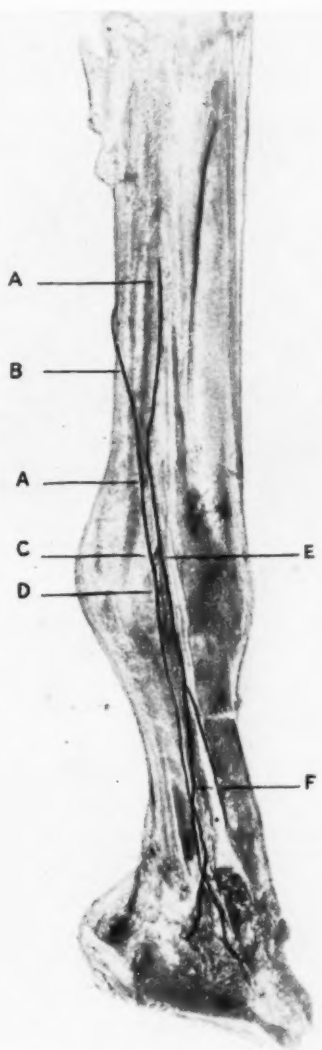



Fig. No. 2.—Outer Aspect

AA—External Plantar Nerve; B—Communicating Branch; C—Point of Communication; D—Posterior Branch of the Ext. P.N.; E—Anterior Branch of same; F—All Branches of same.

## The Pancreas in Sausage Meat

*By*

D. J. ANTHONY & D. HOWIE

In making the larger types of sausage, notably "luncheon sausage," it has long been thought by practical men in the trade that the inclusion of certain glands in the sausage meat leads to the destruction of the sausage skin or casing, unless such meat has been par-boiled before use. During the ordinary process of sausage making, in pre-war years, an occasional "burst skin" during the boiling was of no great importance. Since the war, with manufacturing meat strictly controlled, and the demand for non-rationed goods so high, great care must be exercised in the efficient use of every ingredient. Sausage casings are especially valuable, and difficult to obtain, consisting as they do of the preserved peritoneal and adjoining layer of the animal intestine.

Some imported meats allocated to sausage makers are liable to contain various lymphatic glands, tonsils, salivary glands and pancreas, either whole glands or portions thereof. In the normal manufacturing process the minced meat with seasoning, binding and colouring materials are placed in the skins after mixing. The ends of the skins are then tied up and the raw sausage is boiled in steam-jacketed pans. In this boiling process it sometimes happens that the skins will burst, liberating the contents into the boiling water, and so ruining the work of hours. The skins will have shrunk to about a quarter their normal size and present an appearance as though they had been in contact with some strong acid which had eaten away portions of the casing.

In Germany, where sausage manufacture is almost a national pursuit, practical butchers have always insisted upon boiling the meat if it contains any trace of certain glands, before mixing it with the other ingredients, and filling the casings. As there is some uncertainty as to whether the pancreas alone is the cause of the trouble, it was decided to manufacture some luncheon sausage using the glands mentioned below:—

Beef lymphatic glands (retro-pharyngeal).
Beef tonsils.
Beef salivary glands
Beef pancreas.

The minced glands were placed in sausage casings and boiled in the usual way. After 40 minutes at 180° F. the sausage containing lymphatic glands was quite normal. The sausage containing tonsils showed a very thin casing, but the skin was intact. That containing salivary glands also showed a thin casing with a few holes. The skin looked as though it would burst open if left in the pan any longer. The sausage containing beef pancreas, after only ten minutes at 170° F., had burst. The skin had shrunk from a length of 12 inches to three inches and presented a very "moth-eaten" appearance, as though some powerful corrosive had been at work on it.

It would thus appear that the German manufacturers are correct in suspecting the pancreas as the cause of this trouble. It is also confirmed that if meat containing pancreas is subjected to heat treatment prior to being placed in the skins for boiling, then the secretion responsible for the damage to the casing is destroyed.

*Reference.*—Die Fabrikation feiner Fleisch-und Wurstwaren. Herman Koch. 10th Edn. 1934.

### Weekly Wisdom

*The possibility of being sued is one of the risks of driving an automobile, proposing to spinsters, or of practising veterinary surgery or dentistry.*—Robert E. Ackerberg, LL.B., "Nuisance Suits Against Veterinarians." *J. Amer. vet. med. Ass.* **112**. 190.

* * * * *

A two-year-old pedigree ewe belonging to Mr. Ben Alderson, Glanmiheli, Kerry, Montgomeryshire, has given birth to five lambs. Mr. Alderson, a breeder of long experience, has never before seen five lambs from one ewe.

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## CLINICAL COMMUNICATION

### "A New Virus Disease of Dogs"

E. von Lustig-Lendva, M.A., M.R.C.V.S.
Hendon

In further reference to the communication by me on the above subject published in your issue of February 14th, I forward two microphotographs prepared from slides obtained from one dog, which died from the "New Virus Disease." I have received several private letters on this matter and also read with great interest the letter published in *The Veterinary Record* on February 28th by Messrs. MacIntyre, Trevan and Montgomerie.

I based my report on brain specimens taken from the base of the cerebrum, the mesencephalon. The staining method employed was H-E.

I agree with Messrs. MacIntyre, Trevan and Montgomerie that in this condition we are not dealing with inclusion bodies proper, but it appears to me that the bodies would be more appropriately named "*Displacement Bodies.*"

On Fig. A (see plate) No. 1, it appears to me as if these bodies are entering what I may call the "lebensraum" of the ganglion cell. Here it still seems kidney shaped. In Nos. 2 and 3 the bodies have advanced and the ganglion cell appears to be only half its original size whilst the displacement bodies are now round. In No. 4 the displacement body is still fairly distant while in No. 5 it looks as if the ganglion cell has been fully displaced by the "body." These different stages seem to reappear in Fig. B.

The presence of only one or two of these structures in relation to one ganglion cell, makes it difficult to attribute the same phagocytic action to the "displacement bodies" as is ascribed to microglia in human pathology. Nowhere did I see any cuffing at the bloodvessels.

For the last eight weeks (*i.e.*, as from March 8th) I have been unable to diagnose any further cases of the "New Virus Disease" neither in my own surgery nor in those of my fellow practitioners with whom I have been in contact; apparently, with the waning of other virus diseases, the "New Virus Disease" has also been reduced in frequency.

## ABSTRACTS

[**Iron Metabolism in Piglet Anaemia.** Venn, J. A. J., McCance, R. A., & Widdowson, E. M. (1947.) *J. comp. Path.* **57**. 314-325. (9 Tables.).]

The experimental findings are prefaced by an account of the management, diet and iron supplements, of the sows and litters used. Details are given of the methods used in estimating haemoglobin, blood volume, total iron of the body, organs and blood of the piglets and the iron content of the sow's milk.

While the total iron content of newly-born pigs is subject to variation (1·92 to 3·48 mg. per 100 g.), that of litter mates is comparatively constant. Analysis of piglets at birth, three weeks and eight weeks old, showed that for the first three weeks an intake of 7 mg. of iron per day was necessary to maintain the total iron level and proper growth rate. The iron content of the liver is a small fraction of the total, and this organ is not of importance as a "store." The level of iron falls to a low level at three weeks, but rises again by eight weeks, corresponding to the consumption of foods other than milk.

The administration of iron to piglets caused an increase in the levels at three weeks of age, and there was an improvement in well-being, with a marked increase in weight. The latter was in part due to increased milk consumption and possibly to a greater efficiency of food utilisation.

A comparison of piglets in a clean sty, in a sty cleaned out only once daily and those reared with access to soil, indicated that a small supply of iron was obtained from the faeces of the sow and that the effect of eating soil on the levels of iron was greater than that of medicinal administration.

It is unlikely that the feeding of iron to sows during pregnancy results in any increase in the iron content of the newly-born piglet. In one experiment, however, the concentration was raised, but was insufficient to prevent the development of anaemia. The content of iron in sows' milk was not affected by the administration of iron during pregnancy or lactation. By weighing piglets before and after feeding, it was found that they obtained about 23 mg. of iron in the first three weeks, from the sow's milk. A comparison is drawn between this figure and that of 250 to 350 mg. representing the amount which must be absorbed and retained if the piglet is to grow at the normal rate and maintain an adequate haemoglobin level.

The authors point out that piglets cannot obtain their requirements

from the sow's milk, and that free access to soil provides the best source of iron.

P. K.

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**[Diagnosis of Gastro-intestinal Nematode Parasitism of Sheep by Differential Egg Counts.** KATES, K. C. (1947.) *Proc. Helminth. Soc. Wash.* **14**. 44-53.]

Earlier work by D. A. Shorb (*U.S. Dept. Agric., Tech. Bull.* No. 694. pp. 11, and *J. Parasitol.* 1940. **26**. 223) and by K. C. Kates & D. A. Shorb (*J. Vet. Res.* 1943. **4**. 54) has shown that qualitative diagnosis of gastro-intestinal parasitism by the differential egg counts described by these authors is, with limitations, a practical procedure, but quantitative diagnosis has been little studied. The latter is affected by the different egg-producing capacity of various species of helminths ; by variations of egg-production due to the size of the infestations, the diet of the host, the age of the helminths and of the host and other factors ; variations in the resistance of the host ; the sex ratio of the helminths, and the physical condition of the faeces examined.

The author, working at Beltsville, Maryland, used 59 lambs over a period of two and a half years. The lambs were parasite-free, except for light infestations with *Strongyloides* and coccidia. After infection on contaminated pastures for four days, the lambs were put into pens elevated above the ground for five weeks to allow the helminths to mature ; they were then autopsied and the worms were counted and differential egg counts were done by the Stoll direct centrifugal brine method, which, says the author, collects well over 90 per cent. of the eggs on the first cover slip. The worms found were *Haemonchus contortus*, *Trichostrongylus* (*colubriformis* mostly, with a few *axei*), *Oesophagostomum* (*columbianum* mostly, with a few *venulosum*), *Nematodirus* (mostly *spathiger* with a few *filicollis*), *Cooperia curticei* and *Ostertagia* (*circumcincta* and *trifurcata* mixed). The pre-patent periods of these nematodes are : *Haemonchus contortus*, 20 days ; *T. colubriformis*, 17 to 21 days ; *O. columbianum*, 35 days ; *Nematodirus filicollis*, four weeks ; *C. curticei*, 15 days ; *O. circumcincta*, 17 days ; so that five weeks gave ample time for the maturation of the nematodes.

The author found marked variation in the total egg counts of all genera and in the differential egg counts in relation to the nematode populations when the counts from individual lambs were compared. In the 59 lambs the total number of eggs of all genera per pellet of faeces was 57,836, and the total number of nematodes of all genera recovered at autopsy was 78,675, so that the egg-worm ratio in this particular experiment was 1 to 1·4. The egg-worm ratios varied considerably when similar genera in different lambs were compared, but more than half the egg-worm ratios were reasonably close to the average egg-worm ratio for each genus in all the 59 lambs. The average egg-worm ratios for each genus from all 59 lambs were : *Haemonchus*, 1 to 1 ; *Trichostrongylus*, 1 to 5·1 ; *Oesophagostomum*, 1 to 1·2 ; *Nematodirus*, 1 to 18·1 ; *Cooperia*, 1 to 5 ; *Ostertagia*, 1 to 1·8. These figures illustrate the variation in egg-productivity and other data given show that egg production decreases as the total number of nematodes, taken genus by genus, increases.

The author concludes that differential egg-counts may be valuable for estimating the numbers of nematodes present, if these counts are made on a fairly large number of animals from a flock and if the data are interpreted conservatively and with regard to the important variable factors. When these counts are done on single animals " too much confidence cannot be placed on the results obtained."

G. L.

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**[The Unsuitability of Sodium Fluoride as an Anthelmintic for Chickens.** ENZIE, F. D., & JAQUETTE, D. S. (1947.) *Proc. Helminth. Soc. Wash.* **14**. 67-69.]

The efficacy of sodium fluoride for the treatment of ascariasis of swine was reported by R. T. Habermann *et al.* (*Amer. J. vet. Res.* 1945. **6**. 131), by R. W. Allen (*N. Amer. Vet.* 1945. **25**. 661) and by R. W. Allen & L. D. Jones (*Ibid.* 1946. **27**. 358). Habermann *et al.* also found that two chickens refused to eat feed containing sodium fluoride. In this paper the authors record a more extensive trial of it on poultry.

They used 27 mature birds, weighing 4 to 7 lb., in two groups to which uncounted numbers of embryonated eggs of *Ascaridia galli* had been given two to four days before treatment. One group of twelve birds was given single doses in capsules at the rate of 0·1, 0·2 and 0·3 gramme per lb. body weight ; the other group of 15 birds was given the drug for three consecutive days in the feed at the rate of 0·5, 0·75 and 1·0 per cent. of the feed, regular feeds being omitted for 18 hours before the medicated feeds. A table gives the numbers of worms passed out by the birds and the numbers found in them at autopsy. When the drug was given in capsules its calculated efficacy against *Ascaridia* was 42 per cent. at 0·1 gramme per lb., 75 per cent. at 0·2 gramme per lb., and 96 per cent. at 0·3 gramme per lb. body weight. Thus there was a good ascaricidal effect, but four of the twelve birds getting the higher dosages were killed by the sodium fluoride. All the birds were depressed and had fluid, mucoid and diarrhoeal droppings for several days after treatment. Six of the eight survivors of this group had slight to moderate enteritis. The action against *Heterakis* was insignificant at all dosages. Group 2 also showed an increased ascaricidal action as the percentage of the drug in the feed increased ; but at all dosage rates the birds ate this medicated feed less readily than regular feed and their droppings were mucoid and less abundant two to three days after treatment, becoming normal when the medicated feed was discontinued. All the birds survived this treatment and only three of the 15 birds in this group showed slight or moderate enteritis. In this group also the action against *Heterakis* was insignificant at all dosages.

The authors conclude that sodium fluoride given in capsules is " extremely toxic " and that it has no significant ascaricidal action when it is given in the feed.

G. L.

## REPORT

**[City of Johannesburg Abattoir and Live Stock Market Department.** Report of the Acting Director, July 1st, 1946, to June 30th, 1947.]

This report is signed by Dr. G. Martinaglia, M.SC., D.V.SC., as Acting Director, whilst Mr. Kirkpatrick, the Director, was on leave pending his retirement in February, 1948. The veterinary staff consists of Mr. M. C. Robinson, B.V.SC. (S.A.), as Acting Assistant Director, and Mr. E. J. PULLINGER, M.R.C.V.S., B.V.SC. (S.A.), as well as Dr. P. J. MEARA, D.V.SC. (S.A.), and I. Mowat, B.V.SC. (S.A.). Mr. Pullinger is in charge of the Milk Laboratory, whilst Messrs. Meara and Mowat are seconded to the Public Health Department on full-time dairy herd inspection. The Chief Meat Inspector is Mr. D. Ramsay, A.M.I.S.E., C.R.SAN.I., with 18 meat inspectors. In all, 148 Europeans are employed and 180 natives.

During the year 35,533 animals passed through the live stock markets, and 880,375 animals were slaughtered in the abattoir. Tuberculosis notifications during the year numbered 122 cattle and 440 pigs. Veterinary treatment was given to 1,750 horses and mules, and 1,403 oxen. There were no deaths from horse-sickness, and all the municipal oxen have been inoculated against anthrax. The health of the 1,809 animals in the Zoo was good. The polar bear which had been in the Zoo for 23 years died of old age. During the year 1,236 dairy herds were visited and 79,677 cows examined. There is a high prevalence of mastitis in urban, semi-urban and even rural areas. Of the 59 samples of milk tested during the year, two were found contaminated with tubercle bacilli, and the cow responsible was identified and slaughtered in each case.

The progressive nature of the Johannesburg municipality is shown once more by the modern equipment installed in the abattoir. The Director was responsible for introducing the chain system of sheep slaughtering, whereby factory practice is now the vogue, with a resultant increase in efficiency. It is to be hoped this system will be extended to include cattle, goats, calves and pigs.

For some years there have been repeated agitations for the control of the South African abattoirs and live stock markets by the State through some official body, such as a utility company, and various enquiries have been conducted, and reports tabled in the Union House of Assembly. On April 29th, 1947, the Minister for Agriculture, Mr. J. G. N. Strauss, moved to appoint a select committee to enquire how best to improve the Marketing Act. In the meantime it is obvious the Municipalities in South Africa do not yet know what form of control will be exercised over slaughtering and marketing. Apart from the abattoirs at East London, and Durban, all the South African abattoirs are municipally controlled at present. The two exceptions mentioned were erected for meat exports.

A table shows the cost of operating the Johannesburg abattoir and live stock market for the last 27 years. The net result is a loss of £30,050, due largely to shortages and irregularity of supplies in some years. Ten years showed losses and 17 years showed profits.

The report gives detailed tables of meat condemned with the diseases responsible, and it also contains a paper recently published by Dr. Martinaglia and Mr. F. A. Brandt, B.A., B.SC., of the South African Medical Research, on " Cysticercosis of the Impala or Rooibok (*Aepyceros melampus*) with reference to Meat Hygiene." In the antelopes examined the elbow cut was found better for examination than the masseter muscles, which are not so well developed as in the bovine. The Impala cysticercus possesses a double row of hooks, whereas *C. bovis* is unarmed. In condemned carcases the measles were found in the gluteal and shoulder muscles in all cases. During the shooting season the Impala (Blesbok, or Springbok) is the commonest buck sent to the abattoirs, and the cases described

were from a number shot at Stegi in Swaziland. The farmer reported that a cheetah had been recently destroyed on this farm. Attempts to feed infected meat to a dog with a view to obtaining the adult worm were not successful, so that no record exists of the adult form of *T. impala*.

The Acting Director ends his most interesting report with a courteous word of thanks to his staff. To Dr. Martinaglia we extend our best wishes on his new appointment, and our congratulations on his Report, which shows that the best traditions of the Johannesburg Veterinary Department are being fully maintained and, if anything, improved upon.

D. J. A.

## Victoria Veterinary Benevolent Fund

### Meeting of Council

A meeting of the Council of the Victoria Veterinary Benevolent Fund was held at No. 10, Red Lion Square, London, W.C.1, on Thursday, February 19th, 1948, when the following members were present: Mr. Arnold Spicer (President) in the chair, Mr. H. W. Dawes, Mrs. D. I. Glover, Professor J. McCunn, Captains W. R. McKinna, T. M. Mitchell and J. W. Procter, Lt.-Col. P. J. Simpson and Professor G. H. Wooldridge. Mr. C. W. Francis, Accountant, was in attendance. Apologies for absence were received from Professor J. B. Buxton, Mr. and Mrs. G. N. Gould, Mrs. W. G. Wragg, and Mr. H. W. Steele-Bodger.

The minutes of the previous meeting held on September 24th, 1947, having been published, were taken as read and signed as correct.

*Correspondence.*—The Secretary reported that he had received a letter from another M.R.C.V.S. resident in Australia (who did not wish his name to be published) offering to send five or six food parcels to recipients of the Fund, more particularly those with young children. It was agreed to leave the matter to the Secretary to select the most suitable cases.

*Cases.*—131. Widow, aged 75. The Hon. Secretary read a letter from this recipient intimating her intention of proceeding to Canada to take up residence with her married daughter and asking for information as to the continuance of her grant.

It was resolved, "That the monthly grant of £4 6s. 8d. be continued until the date of her definite departure to Canada when the Hon. Secretary be authorised to arrange for a year's grant of £52 to be paid in advance."

*Nomination to Council.*—The Hon. Secretary reported that the West of Scotland Division, N.V.M.A., having complied with the Articles of Association, had nominated Captain William Watt, M.R.C.V.S., D.V.S.M., to serve on the Council.

#### Christmas Gifts

The following report from the Hon. Secretary was submitted:—

(*a*) In answer to the Christmas Appeal in *The Veterinary Record*, the sum of £40 17s. 6d. had been received. With the special contribution of £226 earmarked for the Christmas Fund by the Ladies' Guild, as reported at the previous meeting of Council, cheques to the amount of £203 were sent out on December 12th, 1947, to 34 recipients in sums ranging from £4 to £10 as follows:—

| | £ | s. | d. |
|---|---|---|---|
| 4 recipients—£4 each ... ... ... ... ... | 16 | 0 | 0 |
| 21 recipients—£5 each ... ... ... ... ... | 105 | 0 | 0 |
| 4 recipients—£8 each ... ... ... ... ... | 32 | 0 | 0 |
| 5 recipients—£10 each ... ... ... ... ... | 50 | 0 | 0 |
| | 203 | 0 | 0 |

(*b*) *Parcels.*—In addition, five parcels of food sent by an M.R.C.V.S. resident in Australia, eight gifts of poultry from an M.R.C.V.S. resident in Great Britain (both wishing to remain anonymous), two food parcels from Mrs. Pearson, two gifts from Major Aston and two parcels from Mr. Barrett were distributed. The Australian Veterinary Association had, he understood, also sent parcels but how many and to whom he had not been notified.

The letters received from the recipients of parcels and cheques were couched in most grateful terms and indicated that their Christmas was made much happier than they had anticipated.

The action of the Executive Committee was approved.

### Accountant's Report

The Accountant submitted the following report:—

Since the previous meeting of Council held on September 24th, 1947, the following Donations (including three legacies) have been received:—

#### Donations

| | £ | s. | d. |
|---|---|---|---|
| *Collecting boxes*— | | | |
| Ayrshire Division, N.V.M.A. .. .. .. .. .. | 3 | 17 | 0 |
| Central Veterinary Society .. .. .. .. .. | 2 | 11 | 1 |
| J. Wright Conchie .. .. .. .. .. | 1 | 9 | 2 |
| J. L. Cormack .. .. .. .. .. | 3 | 3 | 0 |
| Derbyshire Veterinary Association .. .. .. | 3 | 11 | 0 |
| Dumfries and Galloway V.M.A. .. .. .. | 5 | 16 | 3 |
| H. Gillmor .. .. .. .. .. | 1 | 11 | 6 |
| G. N. Gould .. .. .. .. .. | 1 | 11 | 6 |
| Eastern Counties Veterinary Society .. .. .. | 2 | 17 | 0 |
| J. R. Hewer .. .. .. .. .. | 4 | 4 | 0 |
| W. E. Ison .. .. .. .. .. | 0 | 12 | 6 |
| Lancashire Veterinary Association .. .. .. | 4 | 6 | 6 |
| Lincolnshire & District V.M.A. .. .. .. | 5 | 6 | 9 |
| Charles Masson .. .. .. .. .. | 1 | 3 | 6 |
| Mid-West & S. Wales Division .. .. .. | 11 | 1 | 6 |
| J. T. Morton .. .. .. .. .. | 1 | 2 | 6 |
| North of England V.M.A. .. .. .. .. | 6 | 0 | 0 |
| North of Ireland V.M.A. .. .. .. .. | 7 | 10 | 0 |
| North Wales Division, N.V.M.A. .. .. .. | 5 | 17 | 0 |
| C. W. M. Park .. .. .. .. .. | 0 | 10 | 6 |
| Major L. P. Pugh .. .. .. .. .. | 2 | 6 | 0 |
| C. E. Rix .. .. .. .. .. | 7 | 17 | 11 |
| Royal Counties Veterinary Society .. .. .. | 7 | 16 | 6 |
| Scottish Metropolitan Division .. .. .. | 2 | 19 | 8 |
| Scottish Branch, N.V.M.A. .. .. .. .. | 3 | 10 | 6 |
| South-Eastern Veterinary Association .. .. .. | 7 | 14 | 0 |
| Southern Counties Division, N.V.M.A. .. .. .. | 1 | 1 | 0 |
| South Wales Division, N.V.M.A. .. .. .. | 10 | 1 | 11 |
| J. Storrar .. .. .. .. .. | 2 | 2 | 0 |
| Sussex Division, N.V.M.A. .. .. .. .. | 6 | 6 | 3 |
| Veterinary Officers' Association (per Capt. T. M. Doyle) .. .. | 2 | 10 | 0 |
| Western Counties V.M.A. .. .. .. .. | 4 | 7 | 6 |
| West of Scotland Division, N.V.M.A. .. .. .. | 3 | 15 | 0 |
| Arthur Whicher .. .. .. .. .. | 4 | 12 | 6 |
| Withers & Powley .. .. .. .. .. | 0 | 17 | 0 |
| Yorkshire Veterinary Medical Society .. .. .. | 7 | 0 | 0 |
| A. Young .. .. .. .. .. | 0 | 10 | 6 |
| | £149 | 4 | 6 |
| Anonymous .. .. .. .. .. .. | 2 | 2 | 0 |
| J. A. W. Dollar (in lieu of wreath) .. .. .. | 4 | 4 | 0 |
| Geo. Dunn .. .. .. .. .. .. | 1 | 1 | 0 |
| Bexhill Horse Show Committee (per A. Whicher) .. .. | 10 | 0 | 0 |
| Canine Insurance Association .. .. .. .. | 5 | 5 | 0 |
| Ellen Clancy (legacy, less charges) .. .. .. | 99 | 11 | 0 |
| Exeter Agricultural Show (per R. B. Nelder) .. .. | 25 | 0 | 0 |
| Capt. H. Fraser .. .. .. .. .. | 1 | 1 | 0 |
| Col. Glyn Lloyd (legacy) .. .. .. .. | 100 | 0 | 0 |
| R. Moore, Treorchy (legacy) .. .. .. .. | 50 | 0 | 0 |
| Lancashire Veterinary Association .. .. .. | 5 | 5 | 0 |
| Moredun Institute (proceeds of sale of tomatoes) .. .. | 3 | 4 | 0 |
| North Wales Division .. .. .. .. .. | 10 | 10 | 0 |
| North of Ireland V.M.A. .. .. .. .. | 18 | 15 | 0 |
| National Greyhound Racing Club .. .. .. .. | 5 | 0 | 0 |
| Midland Counties V.M.A., 1943–1948 .. .. .. | 31 | 10 | 0 |
| C. Peirce .. .. .. .. .. | 1 | 1 | 0 |
| Mrs. Rutherford (per A. Whicher) .. .. .. | 2 | 2 | 0 |
| Southern Cairn Terriers Club (per K. G. D. Evans) .. .. | 2 | 2 | 0 |
| Mrs. Barratt Stennett (Life Membership Fee) .. .. | 10 | 10 | 0 |
| Veterinary Medical Association of Ireland .. .. | 10 | 15 | 6 |
| John Willett (in memory of) .. .. .. .. | 41 | 9 | 0 |
| D. A. W. Walker .. .. .. .. .. | 1 | 1 | 0 |
| West of Scotland Division, 1947–48 .. .. .. | 10 | 0 | 0 |
| | £600 | 13 | 0 |

It was resolved, "That the report be adopted and that the thanks of the Council be conveyed to the respective Donors."

*Life Membership.*—It was unanimously resolved, "That Mrs. Barratt Stennett be appointed a Life Member of the Fund."

*Investments.*—The Accountant reported that the Hon. Treasurer had invested the balance of £800 standing in the Donations Account on December 4th, 1947, in the purchase of £952 2s. 10d. 2½ per cent. Treasury Stock at 83¾.

The action of the Hon. Treasurer was approved.

*Vote of Thanks.*—On the proposition of Professor G. H. Wooldridge a hearty vote of thanks was accorded to the President and members of the Executive Committee for their especial services in connection with the Christmas Gifts and other business during the past quarter.

## SOIL AS WORLD PRIORITY

A time would come when man would not be able to find sufficient new soil, and the world would begin to starve, if more attention were not paid to the need for humus, Mr. H. R. Oxborrow, chairman of the county horticultural section, told a meeting of Spilsby F.U. horticultural branch. Good soil was world priority No. 1. In these days it was not possible to get manure for cultivation, and it was sometimes uneconomic to give the soil the artificial manures it needed. He had tried humus, and found it paid even better than manure in many ways. It could be made of any vegetable matter. "If we have any respect for those who follow us as food producers, we must begin to think not how much we can get out of soil, but what we can put into it," he said. "The future does not depend so much upon good seed as soil."—*Farmer and Stock-Breeder.*

# MEMOIR

## Professor Donald Capell Matheson, F.R.C.V.S., D.V.S.M., F.R.S.E.

The profession and the Royal (Dick) Veterinary College in particular have suffered a severe and tragic loss in the sudden death of Professor Matheson, which occurred on March 8th at the age of 67, a few minutes after entering his private laboratory in the College.

Born in 1880, he graduated from the Royal Veterinary College, London, in 1905, as M.R.C.V.S., and in 1911 obtained the F.R.C.V.S. In the interval he studied at Victoria University of Manchester and gained the D.V.S.M. (Vict.). After a short time in general practice in London and the provinces he served as a Demonstrator in the Department of Comparative Pathology and Bacteriology of Liverpool University from 1907-1912, where he laid the foundation of what was to be his life's work. Following a brief interval of less than a year as a Veterinary Inspector in the Animal Diseases Branch of the Ministry of Agriculture, opportunity to return to academic life offered itself when, in 1913, the Chair of Pathology, Bacteriology, and Meat Inspection became vacant at the Royal (Dick) Veterinary College to which he was appointed. He continued to hold the Chair until he reached the age of retiral in 1946 and during the last year of this period held the office of Acting Principal of the College. After only a few months in retirement, difficulties arose in his old Department from resignation of staff and Professor Matheson was requested to return and take over temporarily the duties of Head of the Pathology Department. Thus it was that he died in the very Department which he had built up and guided in its development in spite of difficulties which would often have discouraged many a man with less tenacity of purpose.

In 1913 the College was still in Clyde Street and the Department of Pathology and Bacteriology was very different from what it is to-day. It consisted of a class laboratory and one small attic room; the laboratory was shared with the Anatomy Department for Histology and contained merely two long bare benches without gas, water or sink fittings; the attic room at the back of the main frontage of the College was so dark that even in daytime work had to carried on by gaslight. This room was the Professor's private room and laboratory, where, along with a laboratory boy, all the work of routine diagnosis, small-animal *post-mortem* examinations, and preparation for practical classes in Pathology and Bacteriology was done. It was a low room with open shelves on three walls extending from floor to ceiling crowded with bottles containing the accumulation of specimens collected over many years, larger bottles, and miscellaneous containers with further specimens covering surrounding parts of the floor space. In the centre of the floor was a square deal table which had on it a gas incandescent lamp, an incubator, and all the incidental things required for any work in hand, there usually being only sufficient space left for the Professor to place his microscope. In spite of the limited space, somehow or other from this room came the sections of tissues and bacteriological cultures for the practical classes which must all have been prepared by Professor Matheson himself. The atmosphere of the room, situated as it was at the highest part of the enclosed College yard, around which the stables were grouped, is best left to the imagination. At the time of Professor Matheson's appointment a beginning had been made with the building of the new College at Summerhall, and the prospect before him of moving at an early date to a new department must have sustained him against the depressing effect of the accommodation in which he had to work during the first three years he was in Edinburgh.

Unfortunately, the outbreak of the first world war in 1914 led to inevitable delays in building and it was not until 1916 that a move was made from Clyde Street, and then not to a completed new College but to a mere shell of a building, with no laboratory benches, no completed lecture rooms, and no furnishings other than old tables, cupboards, and museum cases which could be collected from the meagre equipment of the old College. Work continued in the new quarters under the same difficulties of lack of assistance and adequate equipment for three more years. In 1919, to permit Professor Matheson to undertake post-graduate teaching of his subject to the first class of D.V.S.M. students and to meet the demands for a rapidly increasing laboratory service for the investigation of poultry diseases, a qualified assistant was added to his staff. The next few years saw many changes in the Department which must have given Professor Matheson much satisfaction after his early experiences. Lecture rooms and laboratories were completed, scientific equipment gradually flowed in, and extra assistants were gathered round him as the work of the Department continued to grow.

Unfortunately, little relief from the burden of teaching resulted from the increase of assistants, as they were chiefly concerned with the investigational work of the Poultry Department, and from 1930 onwards duplication of laboratory classes added greatly to the amount of time required for routine teaching due to the great influx of students which started about this time. It was not until the recommendations of the First Report on Veterinary Education were acted upon in 1940 that provision of an adequate professional staff at last brought relief to the Department which Professor Matheson, largely by his own efforts, had built up.

Looking back over the years Professor Matheson served the College, there is no doubt that his professional life was over full and that he was asked to carry a very heavy burden. It was typical of the man that he was never known to intrude his difficulties and troubles on others, nor did he ever say a harsh word against any man. Professor Matheson had a simplicity of character which puzzled many, but from behind a façade of deep seriousness there would every now and then flash out a whimsical and arresting utterance which revealed the hidden depths of the man. The high regard and affection in which he was held by his colleagues must be a comfort to his widow, to whom deep sympathy is extended in her great loss.

W. M. M.

## A Personal Tribute

The news of the passing of Professor Matheson must have given rise to a sense of grievous loss to all who knew him as a kindly, gracious man. Tragic in its suddenness, the end was mercifully swift.

Professor Matheson's contribution to veterinary science is not nearly so well known as it deserves to be; this was largely due to his quiet, unostentatious nature that abhorred anything savouring of self-advertisement. That the veterinary profession plays its present part in coping with diseases of poultry is in no small measure due to his early pioneer work and interest in this branch of pathology. For one who had spent all his professional life in this country, he had an almost unique knowledge of veterinary protozoology. Few veterinary pathologists could approach his skill in

the differential diagnosis of the various forms of neoplasm encountered in the domestic animals.

To those only familiar with the size of the present staffs in the Departments of Pathology and Bacteriology in the College, it is almost incredible that Professor Matheson had for six years to undertake all the work of the conjoint Department with the assistance of a young laboratory boy, who was inevitably a bird of passage. In 1919 a full-time professional assistant was appointed, but at the same time the course for the D.V.S.M. was initiated, placing an additional load on the shoulders of an already overworked teacher. That the teaching of both undergraduates and post-graduates under these circumstances was so successful is eloquent testimony to the zeal and devotion of Professor Matheson. It was not until 1938—25 years after his appointment—that funds were forthcoming to provide the professional and technical staff that now deal with pathology, bacteriology and protozoology. And yet in spite of the volume of teaching with which he had to cope, Professor Matheson's lectures showed every sign of careful preparation. Using phrases that had a quaint but wholly delightful flavour he could hold a class of students spellbound.

His knowledge of English literature was almost encyclopaedic and it seemed to be a source of genuine pleasure to him when either colleague or student sought his help or advice on some problem whatever its dimensions. Drawing from this vast store of knowledge, Professor Matheson's addresses to the College Dialectic Society were a literary treat that delighted his audience and made a lasting impression carried by many down through the years. He had an intense interest in veterinary literature and prepared an index of the works referred to in Smith's History of Veterinary Literature—a most valuable piece of work, a copy of which he presented to the R.C.V.S. Library. He had thought of writing an additional volume that would have brought the history of veterinary literature up to date, but alas that was not to be.

When invited, on the retiral of Sir Arthur Olver, to accept, for a year, the post of Acting Principal, he readily shouldered the burden of office. To both his colleagues on the staff and the students, it was a joy to see how successful that year was; the times were difficult, everything was in a state of transition from war to post-war, but his calm steadying influence was an invaluable contribution to the welfare of the College he had then served for over 30 years.

His retirement was brief, for, a few months after he had officially demitted office as Acting Principal and Professor of Pathology, he came back to fill a gap in the teaching staff of pathology. And so it came that he died in the Department he had governed and served so long and so well.

To his constant companion these many years there goes out a wave of sympathy and the fervent prayer that she may be encompassed and sustained in her time of sorrow by a cloud of memories of the true and tender nature of the colleague who has gone from us.

Not once but many times since his passing there has been heard in the College the words "it was a privilege to have known him." The memory of Professor Matheson will linger with those who knew him best, as long as they live, and somehow that memory will make life seem sweeter, cleaner and more fragrant.

G. F. B.

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### The Funeral

The funeral took place at the Warriston Crematorium, Edinburgh, on Thursday, March 11th, 1948. The simple yet impressive service was attended by a large number of members of the profession, students of the College, and others who had known Professor Matheson. The service, opening with the 23rd Psalm sung to the tune of Crimond, was conducted by the Rev. H. G. Newsham, M.A., of the Morningside Congregational Church, Edinburgh. Among those present were the Principal of the College, Professor W. M. Mitchell; representing the Board of Management, Professor James Ritchie, Messrs. D. S. Rabagliati, A. D. Buchanan Smith, W. L. Weipers; representing the University of Edinburgh, Professor A. M. Drennan; representing the Glasgow Veterinary College and the Scottish Branch, N.V.M.A., Professor J. W. Emslie; representing the R.C.V.S. and the N.V.M.A, Professor G. F. Boddie; Mr. J. N. Ritchie, D.C.V.O., Animal Health Division, Ministry of Agriculture; representing the Animal Diseases Research Association, Professor J. Russell Greig; representing the Scottish Metropolitan Division, N.V.M.A., Mr. J. S. S. Inglis; representing the Department of Agriculture for Scotland, Mr. A. M. McGlashan; Professors R. G. Linton, A. Robertson, Drs. H. Paver, D. O. Morgan, J. S. Garside, F. J. Elliott, A. Ginsberg, S. Mglej, Messrs. R. G. Thin, J. W. Burgess, Sydney Jennings, W. W. Gregor, J. G. Campbell, John Norval, I. S. Beattie, P. R. Ellis, A. C. W. Little, J. McDonald, J. A. Taylor, P. G. D. Morris, D. E. Donald, W. I. M. McIntyre, J. E. Wilson, R. Duff, N. Bissett, W. Harris, W. A. Greig, A. Gofton, D. K. Bryson, J. F. Matthew and F. P. Milligan, W.S.

## QUESTIONS IN PARLIAMENT

### Veterinary Profession (Recruitment)

Mr. Philips Price asked the Minister of Agriculture what number of recruits have entered the veterinary profession in the last 12 months and what number are now training for entry.

Mr. T. Williams: During the last 12 months 150 students in Great Britain qualified for registration as veterinary surgeons. Enquiries are being made as to the number of students now attending veterinary colleges, and I will write to my hon. Friend.

Mr. Philips Price: Is my right hon. Friend satisfied with the recruitment in view of the important work which these people will have to carry out in future if the scheme for livestock improvement goes through?

Mr. Williams: I believe that all available space in the colleges is being occupied.

## NOTES AND NEWS

### Diary of Events

April 5th.—Meeting of the Farmers' Club, at the Royal Empire Society, W.C.2. (Dr. T. Dalling and Dr. A. W. Stableforth: "Bovine Mastitis.")

April 6th.—Meeting of the Derbyshire Division, N.V.M.A., at the Midland Agricultural College, Sutton Bonington, 2.15 p.m.

April 7th.—N.V.M.A. Committees, at 36, Gordon Square, W.C.1: Parliamentary and Public Relations, 10.30 a.m.; General Purposes and Finance, 12 noon.

April 8th.—N.V.M.A. Committees, at 36, Gordon Square, W.C.1: Veterinary State Medicine, 10 a.m.; Organising, 2.15 p.m.; Home Appointments, 4 p.m.

**April 8th.—Special Meeting of Council, R.C.V.S., 10, Red Lion Square, London, W.C.1**

April 9th.—Meeting of Council, N.V.M.A., at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, 11 a.m.

April 9th.—Meeting of the Biochemical Society, in University College, Dublin, 1.30 p.m.

April 10th.—Annual General Meeting of the Association of Veterinary Inspectors (Ministry of Agriculture and Fisheries), at the Royal Veterinary College, N.W.1, 2 p.m.

April 13th.—Meeting of The Association of Veterinary Teachers and Research Workers at the University, Brownlow Hill, Liverpool, 11 a.m.; to be preceded by Annual Meeting of the Northern Region, at 10 a.m.

April 14th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.

April 14th, 15th and 16th.—Quarterly meetings of Council, R.C.V.S.

April 16th.—Meeting of the Mid-West Division, N.V.M.A., at Bristol (Berkeley Café, Clifton), 2.15 p.m.

April 16th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Grantham, 2.15 p.m.

April 22nd.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

**Sept. 8th to 15th (inclusive).—N.V.M.A. Congress at Southport.**

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### The Veterinary Surgeons Bill, 1948

In the House of Lords on March 24th, Lord Ammon presented a Bill to make further provision for the teaching of veterinary surgery and for restricting its practice by unqualified persons; and to alter the constitution of the Royal College of Veterinary Surgeons and of the Council of the College, and otherwise amend the law relating to veterinary surgeons; and to exempt persons practising veterinary surgery from service on juries.

The text of the Bill is being published shortly and as soon as possible this text, together with a memorandum thereon by the Registrar of the Royal College of Veterinary Surgeons, will be circulated to the profession.

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### Congress at Southport: Simpson Golf Trophy

The Provisional Committee considers that present indications are that there will be inadequate entries to justify holding the competition this year. For guidance the Committee would be glad if all who would like this competition to be held and would support it by entering, would notify the Hon. Local Secretary,

Mr. H. Raynor Hewetson, M.R.C.V.S., 26, Princes Street, Southport, not later than April 30th. If sufficient entries are not promised by then the Committee proposes to abandon the competition this year.

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### Improvement of Poultry Stock

The Minister of Agriculture has accepted the recommendation of the Poultry (Stock Improvement) Advisory Committee to introduce a poultry stock improvement plan. It will be an extension of the existing Accredited poultry breeding and hatchery schemes.

The plan, which has been accepted in principle by the main organisations of the poultry industry, is the improvement of egg production yields. It is not intended to cover table poultry production, as it is hoped to deal with that section at a later date.

It is designed to influence every branch of poultry breeding for egg production, from the foundation stock breeder down to the commercial stock supplier and the egg producer.

The chief new features in the plan are:

The introduction of a scheme of progeny testing for foundation stock breeders.

Formation of a section to cover approved hatcheries and their supplying farms.

Introduction of official certification marks for the use of members in the various grades of the plan.

The sections of the plan will be put into operation when circumstances permit. During the coming season, the Accredited section, with the exception of the foundation stock grade, will be in operation.

It is proposed that progeny testing, which is an integral part of the foundation stock grade, will be run on a trial basis by a small number of breeders for a year.

The detailed regulations under which the various sections of the plan will be operated will be drawn up in consultation with the relative sub-committees of the Poultry (Stock Improvement) Advisory Committee and the organisations of the poultry industry concerned.

The Poultry (Stock Improvement) Advisory Committee was recently re-appointed by the Minister of Agriculture under its original terms of reference but with certain changes in membership.

The chairman of the committee is Mr. R. H. Franklin, a deputy secretary of the Ministry of Agriculture and the vice-chairman is Mr. P. A. Francis. Other members are: Lord Greenway, Miss E. E. Kidd, Messrs. H. D. Barley, G. G. Belfield, C. Duvall Bishop, D. T. Davies, W. P. Drew, H. R. Finn, C. Hedderwick, I. Kemp, G. R. H. Nugent, Gordon Saunders, B. Stansfield, S. Street-Porter, J. Sutton, Y. Watanabe, Major H. E. Whaley, Dr. W. R. Wooldridge. An additional member from Wales will be included.

The secretary is Miss V. C. Lawe, Ministry of Agriculture, 1-3, St. Andrew's Place, Regent's Park, N.W.1.

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## PERSONAL

*Births.*—Denholm.—On March 23rd, to Margo (née Taylor), wife of Thomas C. Denholm, M.R.C.V.S., a daughter—Pamela.

Smith—On March 24th, 1948, to Dilys, wife of James Smith, M.R.C.V.S., Llysonen Road, Carmarthen—a son, William David.

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*Forthcoming Marriage.*—Jobling—Naylor.—The engagement is announced between Richard Jobling, B.Sc., M.R.C.V.S., only son of Mr. and Mrs. R. Jobling, of Seaham, Co. Durham, and Joyce, only daughter of Mr. and Mrs. E. E. Naylor, Bilton, E. Yorks.

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## R.C.V.S. OBITUARY

Holroyd, Henry, 1, Simmons Street, Blackburn, Lancs. Graduated Edinburgh, April 18th, 1883. Died at his residence, 10, Cross Hill Road, Blackburn, on March 26th, 1948; aged 86 years.

Our readers will learn of Mr. Henry Holroyd's death with the deepest regret. The sad information reaches us as we go to press and further reference will be made in an early issue.

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## A FURTHER CASE OF RABIES

The Ministry of Agriculture and Fisheries reports the occurrence of a further case of rabies in an imported dog while in isolation in approved quarantine kennels in the South of England. The dog, an Australian terrier, which was brought to this country from Burma appeared to be in good health at the time of its arrival at the kennels on March 3rd.

A week later the dog appeared excited and bit two attendants. Symptoms suggestive of rabies were observed. These became more marked on the following day and the animal died on March 12th. A *post-mortem* examination was carried out at the Ministry's Veterinary Laboratory, Weybridge, Surrey, as a result of which it was confirmed that the animal was affected with rabies.

This is the fifth case since November, 1946, of rabies in an imported dog while in isolation in quarantine kennels and serves further to emphasise the need for and value of the Ministry's stringent quarantine regulations.

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## LEGAL NOTES

### Leighterton Farmer Loses Action Against Veterinary Surgeon

A Leighterton farmer, William John Butler, of Hillside Farm, near Tetbury, failed in his action at Bristol Assize on February 27th, in which he sought damages against William Stephen Codrington, veterinary surgeon, of Wotton-under-Edge, for alleged improper inoculation of seven heifers.

Mr. Butler's case was that in alleged breach of contract, Mr. Codrington, in inoculating the seven heifers against contagious abortion, at the end of September, 1945, did not use "Strain 19" as stipulated. Towards the end of the year every one of the heifers was said to have "gone wrong" in some way.

It was stated that two heifers died in consequence of abnormal calving, one could not be got in calf, and was sold, and four aborted and lost their calves. Mr. Butler attributed his loss of £628 to the alleged use of the wrong vaccine.

Mr. Codrington's case, presented by Mr. Kenneth H. Bain, was that although not in fact asked by Mr. Butler for "Strain 19," he did inoculate the heifers with it.

Giving evidence, Mr. Codrington said he had been in practice as a veterinary surgeon since 1922. Mr. Butler asked him to inoculate his bunch of heifers against abortion. No mention was made of any particular vaccine.

The heifers were inoculated on September 29th, 1945, with "Strain 19," which he took from single dose bottles. He had never used any type of vaccine other than "Strain 19" which he obtained from the Ministry. In his opinion there was no evidence to show why the heifers had aborted. "They must have been infected before inoculation," said Mr. Codrington, "or subsequent to it, up to six weeks, because immunity would not have been produced until after that period."

Witnesses called on behalf of the defendant included Mr. George N. Gould, a practising veterinary surgeon, Past-President of the National Veterinary Medical Association and present Chairman of the Technical Development Committee of the Association, which Committee stimulated the Ministry to introduce Strain 19 vaccine to this country.

Mr. Gould said he had used at least 12,000 doses of "Strain 19." In 1945 no other vaccine but "Strain 19" was supplied by the Ministry. It was issued in single dose bottles.

Asked, on the assumption that they were inoculated with "Strain 19," if he could account for Mr. Butler's heifers aborting, Mr. Gould said on the evidence he had heard the system of management at the farm was "deplorable from a veterinary point of view."

The trouble might have been accounted for by the proximity of the abortion infection which was known to exist on the next farm. The heifers might have been infected naturally before they were inoculated. If the heifers were, in fact, infected before inoculation, the vaccine would cause neither benefit nor harm.

It was impossible that inoculation with "Strain 19" could produce the abortions or the abnormal calvings. Neither did he know of any other type of vaccine used under such circumstances which could have produced such results.

In concluding, Mr. Gould said that he had recently attended an enquiry at a Verderers' Court in which breakdowns were alleged by farmers, and in one case it was stated that three out of five animals had aborted subsequent to vaccination. From time to time the Ministry had to investigate complaints of alleged breakdowns but in his experience some other cause was usually operative and the vaccine was not incriminated. Success was achieved with Strain 19 vaccine in approximately 96 per cent. of vaccinated animals under field conditions. The other 4 per cent. included occasional groups of animals which subsequently aborted on individual farms, the abortion being, however, unassociated with the vaccine itself.

Professor G. H. Wooldridge, Past-President of the Royal College of Veterinary Surgeons, was called, and said that it was quite inconceivable that abortion in heifers in September, 1946, could be attributable to their having been vaccinated by anti-abortion vaccine Strain 19 in September, 1945. He was unable to suggest any satisfactory explanation of the trouble in these heifers in the absence of any investigation involving the examination of either the heifers or the aborted foetuses. There were several possibilities, but in the circumstances any suggestions were mere conjecture. The position was complicated by the fact that Mr. Codrington's heifer, running with the plaintiff's heifers and inoculated at the same time, remained perfectly healthy and bred normally. He quite agreed with the evidence given by Mr. Gould.

### The Judgment

Giving judgment, with costs, for Mr. Codrington, Mr. Justice Hilbery referred to the fact that Mr. Codrington bought a heifer from Mr. Butler at the time that he inoculated Mr. Butler's seven heifers, and at the same time inoculated the one which he bought. That heifer was a perfectly healthy, normal animal.

His Lordship said he had not the least hesitation in saying he believed Mr. Codrington had told the truth and was accurate when he said he never had any other vaccine than "Strain 19."

"I am satisfied altogether," said the Judge, "that Mr. Codrington did use 'Strain 19' and that whatever was the cause of these mishaps, of this grievous loss, it is not to be attributed to this inoculation performed by Mr. Codrington in September, 1945."

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## LONDON VAN HORSE PARADE

Once again the London Van Horse Parade provided one of the most popular Easter Bank Holiday attractions in town, some 50,000 interested and enthusiastic spectators watching the long procession of well-turned-out horses and vehicles as it passed along the "inner circle" of Regent's Park past the point at which prizes were presented by Frances Lady Daresbury, president of the London Van Horse Parade Society.

For this, the 34th event of the series, there was an entry of 289 singles, 15 pairs and two teams, *i.e.*, 306 horses compared with 249 last year. This is very satisfactory considering the difficulties with which owners and drivers still have to contend in keeping their horses, harness and vehicles up to the high standard required. In nearly all cases this was achieved and met with well-merited reward in prize money, certificates of merit, badges and rosettes. The dairymen and greengrocers made a great display, and novelties were van turnouts under the insignia of British Railways and—this being particularly welcome—also the first appearance of women drivers.

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## ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Sheep Scab:

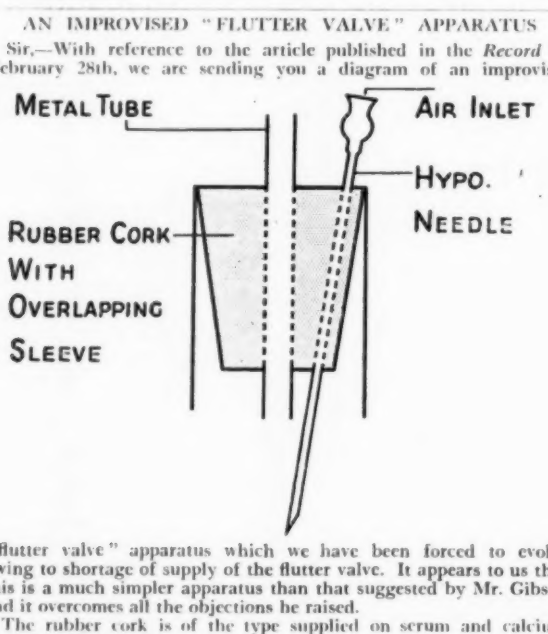
*Westmorland.*—Byebeck, Tebay, Penrith, Cumberland (March 22nd).

# CORRESPONDENCE

*The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.*

## AN IMPROVISED "FLUTTER VALVE" APPARATUS

Sir,—With reference to the article published in the *Record* on February 28th, we are sending you a diagram of an improvised




"flutter valve" apparatus which we have been forced to evolve owing to shortage of supply of the flutter valve. It appears to us that this is a much simpler apparatus than that suggested by Mr. Gibson and it overcomes all the objections he raised.

The rubber cork is of the type supplied on serum and calcium borogluconate bottles.

The air inlet needle must be of a smaller bore than the needle used for injecting the solution.

Yours faithfully,

R. E. McGrath.
I. S. McLaren.

55, Underwood Road, Paisley.
*March 1st*, 1948.

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## TWO RECENT CASE REPORTS

Sir,—I entirely endorse the comments of Peter Dalton on the way in which various lines of treatments are boosted as being specific, and at times, spectacular in results, based as these claims often are, on limited and sharply defined experience.

We have passed through various periods, starting with bleeding, now discarded, yet it is highly probable that even now it could be employed, as for example in that acute congestion of the lungs in the horse, following over-exertion and a sharp run with hounds, and in those refractory cases of lymphangitis in the same animal.

I very much question the value of sulpha-drugs in feline influenza and in canine distemper, and whilst admitting that in selected cases of bovine pneumonia (principally in calves) these may be of value, I consider that too often their use "masks" the real state of affairs, for whilst a drop in temperature may follow, auscultation of the lungs reveals, more often than not, that the condition is as bad as, if not worse than, before. Whether or not the B.H.S. has any significance in small-animal practice, is a question which it is to be sincerely hoped, will soon be determined by the research workers under the Animal Health Trust, for as Peter Dalton correctly states, if one is to believe its chief sponsors, it must be ubiquitous. Stilboestrol, in my experience, signally fails to correct anoestrus at those periods of the year when it would be most valuable to do so, and to be most effective when there is plenty of fresh herbage—long recognised as a natural remedy.

Whilst in my hands its value in removing retained placenta, *per se*, has been at the minimum, I have found that it is of great assistance in bringing about the expulsion of a mummified foetus, provided that not less than 80 c.c., and preferably 100 c.c. of stilboestrol in oil, be injected by means of a Nielsen catheter into the uterus. Intramuscular injections have failed, save in reputed cases of anoestrus, where the possibility of pregnancy has been overlooked.

Penicillin, in the treatment of mastitis, will be discredited unless its use is restricted to the streptococcal form, and if we are honest, we must perforce admit that our knowledge of the varying forms of this disease and their effective treatment, is more than outweighed by what we lack.

Yours faithfully,

"Rothiemurchus,"
St. Cross,
Winchester.
*March 21st*, 1948.

J. F. D. Tutt.

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## A GRAMMATICAL GROUSE

Sir,—What is the justification, if there be any, for the increasing tendency to make use of adjectives such as "bovine" and "equine" as nouns? Throughout the text of N.V.M.A. Publication, No. 16, the word "cattle" is apparently considered adequate to describe the animals whose misfortune it is to be affected with "So-called Skin Tuberculosis," yet in the title of the pamphlet the poor beasts are referred to as "Bovines."

This practice, if developed fully, has awful possibilities. Several references to "porcines" have already appeared in your advertisement columns and no doubt as time goes on we mere men and women will become "masculines" and "feminines"—or perhaps just a lot of silly "asinines."

Yours faithfully,

Royal Veterinary College,
Royal College Street, N.W.1.
*March 18th*, 1948.

George A. Willis.

[The abbreviative use of the adjectival substantive—*e.g.*, "bovine" for "bovine animals"—while open to abuse by exaggeration—has been common grammatical practice at least as long as men have been described as "blacks" or "whites."—Editor].

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### Black Disease of Sheep

The writers of the letter on this subject which was published in last week's *Veterinary Record*, regret their omission of the address. It is as follows: The Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent.